Space Acceleration Measurement Systems (SAMS)

Glenn Research Center

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Engineering Team: ZIN Technologies, Inc.

Objective:

- Provide acceleration measurement systems that meet the requirements of the researchers on board the International Space Station.
- SAMS measures the acceleration environment in the 0.01 to 400 Hz range for payloads.

Relevance/Impact:

- SAMS will measure the acceleration environment for research payloads and other customers on board the ISS.

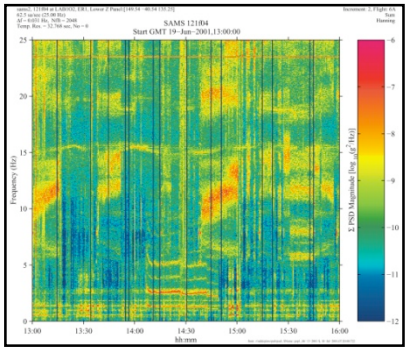
Development Approach:

- SAMS was developed using a dedicated function approach using an Interim Control Unit and SAMS laptop (located in Express Rack 4) for command and control and a Remote Triaxial Sensors to measure the vibratory environment.

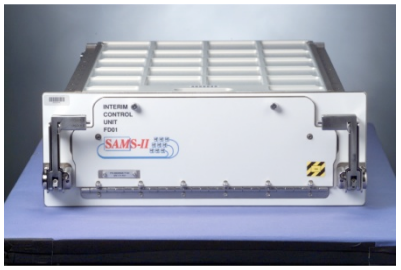
Current On Orbit Configuration:

- SAMS is currently on board the ISS with a mass of 10.44 kg, and a volume of 0.013 cubic meters.
- SAMS is now measuring the acceleration environment in all three ISS laboratories, the USLab, Columbus Orbital Facility and the Japanese Experiment Module.

SAMS acceleration data



SAMS Interim Control Unit



ISS Resource Requirements

Accommodation (carrier)	EXPRESS rack 4, and 1
Upmass (kg) (w/o packing factor)	10.44
Volume (m^3) (w/o packing factor)	0.013
Power (kw) (peak)	0.04 (SAMS system power)
Crew Time (hrs) (installation/operations)	0.17 (10 minutes)
Launch/Increment	6A/Inc 1 (SAMS on orbit)

Revision Date: 08/21/2009

Project Life Cycle Schedule

Milestones	SCR	RDR	PDR	CDR	VRR	Safety	FHA	Launch	Ops	Return	Final Report
Actual/ Baseline	N/A	N/A	12/1995	9/1997	1/2000	9/2000	12/2000	6A Apr 2001	N/A	N/A	TBD
Documentation	Website:http://spaceflightsystems.grc.nasa.gov/Advanced/ISSResearch/Acceleration/SAMS eRoom:https://collaboration.grc.nasa.gov/eRoom/NASAc1f1/ISSHumanResearchProjectsOffice				SRD: EDMP:http://edmp.grc.nasa.gov			Project Plan:https://collaboration.grc.nasa.gov/eRoom/NASAc1f1/ISSResearchProject SEMP:			